BOOK REVIEWS

ADVANCES IN CHEMICAL PHYSICS, VOLUME II. Edited by I. Prigogine. Pp. 412+viii. Interscience Publishers, New York; London, 1959. Price $11.50.

This volume consists of nine articles on different topics contributed by different authors. The first article entitled Clathrate solutions contributed by J.H. Van der Waals and J. C. Platteeuw starts with the discovery and designation of these compounds and then gives a statistical theory of formation of the compounds. The third section deals with hydroquinone clathrates in binary and tertiary systems The article includes a list of 58 references.

The second article by K S. Pitzer is on inter- and intra-molecular forces and molecular polarizability Wave mechanical theory for many-electron systems has been discussed first and the results predicted by the theories have been next compared with experimental results. Finally, intramolecular applications and anisotropic effects have been dealt with in detail. The list of references includes 42 papers.

The third article by J. S. Rowlinson and M. J. Richardson deals with solubility of solids in compressed gases. Recent work on 17 simple systems has been discussed in detail and a brief outline of the theory has been given A list of 90 references has been included at the end of the article.

In the fourth article entitled 'Thermodynamics of metallic solutions' R. A. Oriani has reviewed the work done in this line since the discovery of superlattices in 1919. A list of 71 references has been given in this article

The fifth article by M. Szwarc deals with recent advances in polymer chemistry The topics discussed are Addition polymerization, Initiation of polymerization, Propagation of polymerization and Termination. A list of 57 references has been included.

The sixth article entitled Nuclear Quadrupole Resonance in Irradiated Crystals contributed by Jules Duchesne deals mainly with the effect of high energy radiation on solids as studied by quadrupole resonance A list of 34 references is included in this review.

The seventh review by Per-olov Löwdin deals with correlation problem in Many-Electron Quantum Mechanics This is a lengthy review covering a wide field of theoretical work in this line Starting with Schrodinger Equation for an electronic system, the article deals with the effect of two-particle repulsion and

then gives in detail the Hartree-Fock scheme. The theory is then applied to specific cases, such as, He, alkali metals, etc. Extended Hartree-Fock scheme for constructing pure spin functions has also been discussed. The article includes a list of 42 references.

The eighth article is also of the same title in which Hiroyuki Yoshizumi has made a bibliographical survey of the historical development of the subject

In the last article by Bright Wilson Jr. "the Problem of Barriers to Internal Rotation in Molecules" has been discussed and different methods for the measurement of the potential barriers have been described. A list of 35 references has been given in this review.

It can be seen from the above paragraphs that the book is extremely useful to physicists as well as chemists interested in the modern theories about the different phenomena covered in the articles

S. C. S.

ADVANCES IN SPECTROSCOPY, VOLUME I. Edited by H. W. Thompson. Pp 363+viii. 15cm×23cm. Interscience Publishers Inc., New York, 1959. Price $ 12.50.

This volume contains eight articles reviewing work done in eight different selected lines of research in spectroscopy. The review entitled "The spectra of polyatomic free radicals" by D. A. Ramsay deals with the different methods of producing free polyatomic radicals The spectrograms of a few such radicals have been reproduced in this article. The results of analysis of a large number of triatomic and a few polyatomic free radicals have been discussed in details An exhaustive list of references has been given at the end of the review.

In the review of work on "Spectroscopy in the vacuum ultraviolet" written by W. C. Price the author has dealt with the experimental arrangement for studying the spectra in this region of atoms and molecules and a list of references has been given. No discussion of experimental results has been included in this review

D. H. Rank has briefly discussed in two separate articles the Index of refraction of air and Determination of velocity of light

The fifth article on High resolution Raman spectroscopy" by B. P. Stoicheff deals mainly with the Raman spectra of polyatomic molecules in the gaseous state at high resolution. Many beautiful rotational Raman spectra of vapours obtained by the author himself using a new technique developed by him have

been reproduced The results obtained for symmetric and asymmetric top molecules have been discussed in detail.

Under the t 'Modern infrared detectors' T S. Moss has discussed the properties of thermal detectors, photo conduction infrared detectors and indium antimonide detectors.

The infrared spectra of polymers have been discussed by A. Elliott who has given a complete bibliography of the papers published on this subject at the end of the review

Finally, N Sheppard has discussed the rotational isomerism about C—C bonds in saturated molecules as studied with the help of infrared and Raman spectra. He has also given an exhaustive list of references

The book is very useful to research workers interested in the branches of spectroscopy mentioned above. The get-up is excellent

S.C.S.